7-15-2012

# Determinants Of The Successful Usage Of A Firm's Sns Page

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## Abstract

*This research-in-progress paper aims to investigate the determinants for the successful usage of social network services (SNS) from the perspective of a firm. A new type of commercial community operated by a firm in public SNS is defined as a firm's SNS page and the success of encouraging users' adoption and continued usage of a firm's SNS page is further defined as SNS success. Based on solid theoretical foundation of communicative ecology theory, a conceptual research model of SNS success is proposed. It is composed of the content quality, service quality, and social interaction quality as antecedents. Among these elements, social interaction quality is newly developed to reflect the value of interaction among community members as a second-order variable which consists of exchange information, social support, and friendship. In addition, incentives and the network size are examined as moderating variables. After building the research model and hypotheses, the measurement scales and the results of a pilot study to verify the items are described. At the end of the paper, the conclusion and the expected contribution are discussed.*

*Keywords: social network services (SNS), a firm's SNS page, communicative ecology theory, social interaction quality*

# 1 INTRODUCTION

For the past few years, social network services (SNS) have gained much in popularity from millions of users, becoming their daily practices (Boyd & Ellison 2007). Such explosive diffusion and increasing influence on society increase the commercial value of SNS (Shi et al. 2010). In recent years, many firms have competitively sought and evaluated the potential benefits of SNS, through which they achieve their goals (Huang et al. 2010). Accordingly, an increasing number of firms have created a community page in the form of a public SNS (e.g., Facebook and LinkedIn) as a new way to enhance customer relations and manage their brand image (Vaezi 2011), thus further increasing customer loyalty and encouraging positive word-of-mouth (WOM) (Trusov et al. 2009). A firm's SNS page also has high business value in that large proportions of traffic on e-commerce sites come from SNS (Prescott 2007). As a result, a firm's SNS page becomes an essential part of its business as a supporting tool for many service functions toward customers (eMarketer 2010).

Despite the growing importance of SNS in this regard, there is a significant lack of research pertaining to IS success from the perspective of a firm's use of SNS. Previous IS success research in the SNS field focused mainly on the factors which influence a user's actual use or continuance intention to use from a non-business perspective (Jin et al. 2009; Kwon & Wen 2010; Ou et al. 2011; Zhang 2010). The reason for this is that the primary purpose of SNS use is to manage human relationships, different from other forms of IS which are task-oriented or commerce-oriented. Even across the entire SNS field, a firm's use of public SNS has received scant attention from IS scholars. Only the internal organization use of SNS was examined by some researchers, such as corporate SNS and the implementation of what is known as enterprise 2.0 (Huang et al. 2010; Vaezi 2011). Consequently, the biased scope of SNS research and the short history of interest in this area have led to a considerable research gap as regards the use of public SNS by firms.

As another limitation of previous IS success research in the SNS field, the theoretical approach has been somewhat limited to certain IS models, such as the D&M IS success model and the expectation-confirmation model. In addition, although many IS researchers have supported the importance of human relationship factors in SNS use and have attempted to incorporate the factors into existing models theoretically, there is a lack of a theoretical view to understand human relationship factors comprehensively with the existing dimensions of IS success. Thus, a theoretical need to introduce a new theoretical framework for use when investigating SNS has emerged. The objectives of our study are therefore to (1) investigate the determinants of the successful usage of a firm's SNS page, and (2) introduce a solid theoretical framework with which to study SNS comprehensively.

The rest of the paper is organized as follows. First, in the background and literature review section, the details on a firm's SNS page, communicative ecology theory, and IS continuance are discussed. Second, the conceptual research model of SNS success and the hypotheses are introduced. Next, the research methodology is described. Finally, the conclusion and expected contribution are discussed.

# 2 BACKGROUND AND LITERATURE REVIEW

## 2.1 A Firm's SNS Page

Social networking services (SNS) are "applications that enable users to connect by creating personal information profiles, inviting friends and colleagues to have access to those profiles, and sending e-mails and instant messages between each other" (Kaplan & Haenlein 2010, p. 63). This new type of information technology provides a new way for organizations to become involved with users (Waters et al. 2009). Many firms have started to pay attention to the supportive role of SNS for the creation of a brand community, which is a special type of online community based on a structured set of social relationships among the admirers of a brand (Kaplan & Haenlein 2010). In recent years, an increasing number of firms have created a community page using a public SNS such as Facebook. In this paper,

this emerging community operated by a firm in SNS is defined as a firm's SNS page, and the success of encouraging users' adoption and continued usage of a firm's SNS page is defined as SNS success.

Firms can achieve a large number of benefits from their SNS page. As the general benefits of a brand community, a SNS page provides (1) an additional communication channel and linkage to devoted users (Jang et al. 2008), (2) a cost reduction for customer retention and customer service, and (3) an increase in sales, customer satisfaction, and brand image (Banks & Daus 2002). Besides, the unique characteristics of SNS provide three new benefits. First, a firm's SNS page is an easy-to-approach channel. If a user is a fan of a certain firm's SNS page, postings of the firm's SNS page can be shown in the user's page. The direct display provides a way for firms to become part of a user's daily life and to be seen by the friends of the user. Secondly, a firm's SNS page is a trustworthy communication channel, as a firm's SNS page is similar to a consumer-dominated channel through which users perceive the information as more reliable than firm-initiated communication (Schiffman & Kanuk 2009). Thirdly, a firm's SNS page offers a considerable amount of high-quality information diffusion. Long ties of friendship speed up the dispersion of information by allowing the information in one's network to move into someone else's network (Watts 2003). In addition, peer recommendations in SNS have more of an impact on their friends' behaviors (Smith et al. 2005), thus providing an opportunity for a firm to reach a person who may initially be less interested in the firm (Utz 2009).

## 2.2 Communicative Ecology Theory

### *2.2.1 Definition*

Communicative ecology theory (CET) is a conceptual framework in the media and communications field concerning the dynamic interrelationships that exist among technology, content, and social interaction (Foth & Hearn 2007). CET provides a holistic approach by considering not only the technical infrastructure but also the discursive content and communicative social interactions that take place. CET was initially proposed by Altheide (1994), who suggested the ecology of communication as a concept "to clarify how IT and communication formats operate in the effective environment and are intertwined with activities" (p. 665). The concept of communicative ecology was further developed in several studies. Tacchi et al. (2003) defined communicative ecologies as "processes that involve a mix of media, organized in specific ways, through which people connect with their social networks" (p. 17). Foth and Hearn (2007) further broadened the conceptual boundary of communicative ecology to include "the context in which the communication process occurs" (p. 756).

As the concept of ecology literally indicates, communicative ecology is a network composed of various elements. Therefore, many types of people, media, activities, and relationships should be comprehensively examined, analogous to not focusing only one plant or animal when investigating forest ecology (Tacchi et al. 2003). To handle the immensity and complexity of ecology research, three layers of interpretation were proposed by Foth and Hearn (2007). There were the technological layer, the discursive (content) layer, and the social layer. The technological layer is composed of devices and media which connect people and enable communication and interaction among them (e.g., a mobile phone and internet websites). The discursive layer is composed of content which is an idea or a theme of conversation. The social layer is composed of people and social modes. In brief, the technological layer addresses the technology used, the discursive layer addresses the communication content, and the social layer addresses those who are communicating (Hearn et al. 2009a).

The three layers of CET allow many researchers to engage actively in research on IT-mediated communicative ecologies. Examples include public internet adoption in a community (Powell 2007), a media-mediated virtual organization (Yates et al. 2003), tablet PC adoption in education (Berry & Hamilton 2006), and a media-mediated urban apartment complex (Foth & Hearn 2007). More recently, new media types such as various web 2.0 applications have become popular topics. Neighborhood websites communities were examined as new media connecting local neighborhoods (Button & Partridge 2007). In addition, applications and implementations of web 2.0 services, such as blogs and wikis, were investigated within the context of corporate communications (Hearn et al. 2009a).

### 2.2.2 *Applying CET to a Firm's SNS Page*

A holistic picture of a communicative ecology provides a much easier understanding of the impact and possibility of a particular medium such as SNS (Tacchi et al. 2003). SNS is now a daily routine that occupies a significant part of a person's communicative ecology (Choi 2008). This new social media embedded within a particular instance of communicative ecology can also be examined using the three layers of CET (Hearn et al. 2009b), as the big picture of communicative ecology with a mix of media is merely the sum of many sub-communicative ecologies of each type of media. Consequently, CET provides a new meaningful approach and a solid theoretical background with which to study a social information system such as SNS. In this paper, a firm's SNS page is considered as a type of SNS-mediated communicative ecology of a group of people who have similar interests with the three layers of CET applied to examine it.

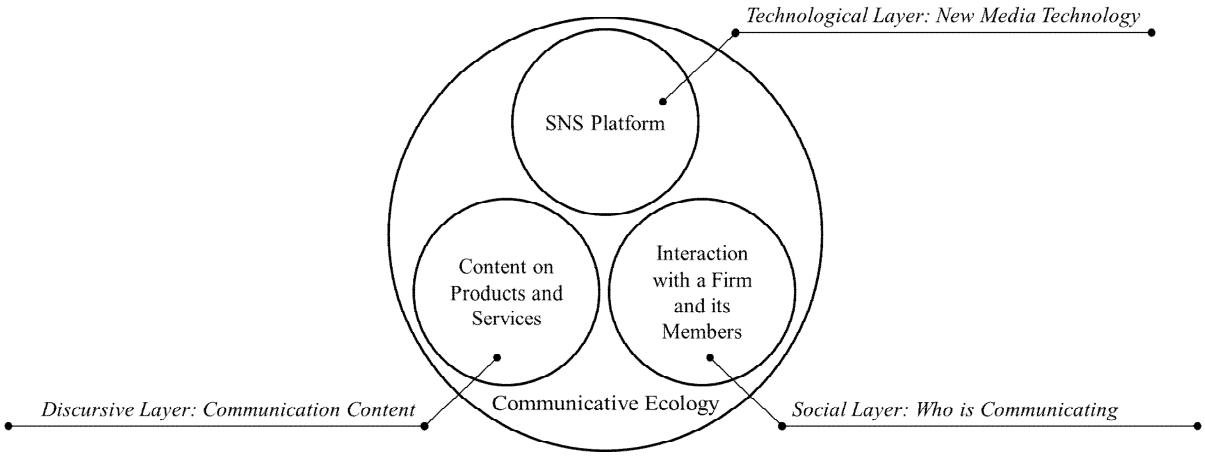


*Figure 1. The Communicative Ecology of a Firm's SNS Page*

Figure 1 represents the communicative ecology of a firm's SNS page. The technological layer is composed of SNS platforms in which firms create their pages. The discursive layer is composed of product and service content provided by a firm with which a firm (or a firm's manager) and members communicate with each other. Lastly, the social layer consists of interaction between a firm and community members. A user can communicate with a firm and request a service, and the firm can respond to the user and provide the requested service. In addition, a user can also interact with community members. All community members share their information and experience with the products and services and engage in various forms of communication with peer members.

## 2.3 IS Continuance

In the IS continuance model, Bhattacherjee (2001b) argued that IS success depends more on the continued use of IS than simple adoption by comparing costs required to retain customers and acquire new customers. In this sense, IS continuance is also expected to play a critical role in determining SNS success. This proposition is justified for several reasons. First, in numerous instances, the primary goal of a firm's SNS page is to build and manage excellent on-going relationships with many users (Kaplan & Haenlein 2010), which is eventually helpful to the firm in any event (e.g., a good relationship with customers positively affects a user's purchase intentions of actual goods from the firm (Chen et al. 2012)). Secondly, the value of a firm's SNS page is determined by the continued usage by its users. There should be a sufficient number of users who share their opinion and use the page positively. Otherwise, the online opinion platform of a firm's SNS page will lose its value and effect (Jin et al. 2010). Lastly, a firm's actual profit is closely associated with the continued usage of users. For instance, on-going relationships with customers contribute to a cost reduction of the costs of consumer retention and service (Parthasarathy & Bhattacherjee 1998). Therefore, IS continuance serves as a success measure of SNS success. Many SNS studies also adopted IS continuance as an important IS success measure (e.g., Jin et al. 2009; Kwon & Wen 2010; Shi et al. 2010).

# 3 RESEARCH MODEL AND HYPOTHESES

CET provides a comprehensive theoretical lens to investigate determinants of SNS success. In order to develop the three layers of CET into a concrete form, each layer is transformed into a quality attribute; the SNS platform (or system) quality for the technological layer, the content quality for the discursive layer, and the qualities of interaction with a firm (service quality) and with members (social interaction quality) for the social layer. However, although all three layers are considered in general context of SNS, it is found that the SNS platform quality need not be considered as a determinant on a firm's SNS page due to its special system features: (1) the homogeneity of the SNS platform which firms use and (2) the lack of controllability of the SNS platform. To be more specific, first, there is no actual difference in the SNS platform quality because firms use one or a small number of dominant SNS platforms to maximize the effect of their SNS pages. In other words, firms share the same dominant SNS platforms. Secondly, firms do not have control over their SNS platforms because the system belongs to the platform providers. Even if firms succeed in enhancing some system features, the benefits will be shared with all other competitors. Therefore, the SNS platform quality is not considered due to this special context of a firm's SNS page. Finally, the three qualities identified based on the remained discursive layer and social layer are hypothesized to influence two mediating variables of perceived usefulness and user satisfaction which are significant antecedents of continuance intention (Bhattacherjee 2001b). The resulting research model is presented in Figure 2.

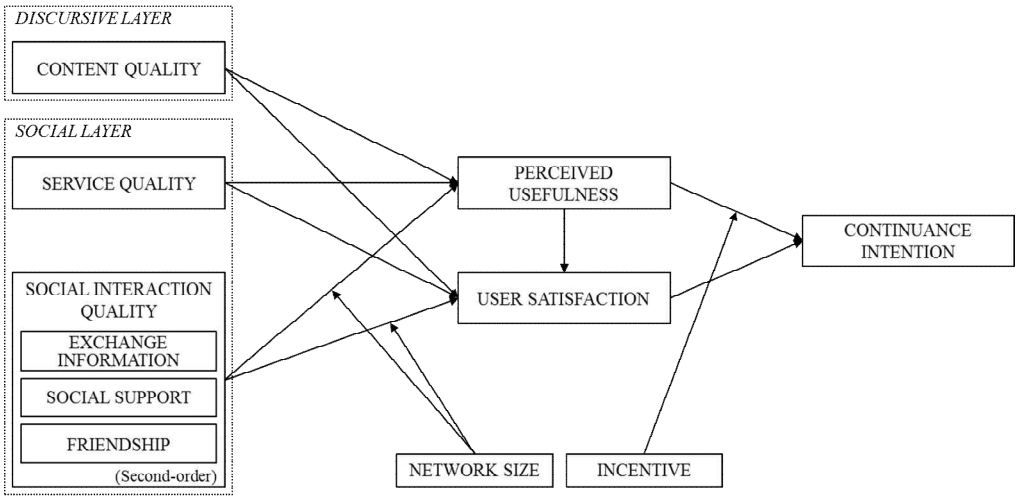


*Figure 2. SNS Success Model*

## 3.1 Content Quality

The quality of communication content of the discursive layer is described as the content quality (CQ), which is in line with the information quality introduced in the D&M IS success model (ISSM). Prior IS success studies insisted that the information should be useful, accurate, clear, and updated in a timely manner (Delone & McLean 2003). Also, previous studies found that CQ is positively related to PU (Seddon 1997) and SAT (Delone & McLean 2003). Both relations were further proved in recent SNS studies (Jin et al. 2009; Zhang 2010). Thus, it is expected that the positive CQ-PU and CQ-SAT relations will hold on a firm's SNS page as well. Therefore:

*H1a: The content quality will positively affect perceived usefulness on a firm's SNS page.*

*H1b: The content quality will positively affect user satisfaction on a firm's SNS page.*

## 3.2 Service Quality

One of the two players in the social layer is a firm. It is important to notice that the interaction between a firm and users is more likely to be perceived as a type of service by users. Thus, the quality

of social interaction with a firm is represented as the service quality (SQ), which is in line with the definition of "overall support delivered by a service provider" (Delone & McLean 2003, p. 34) of the ISSM. SQ has been highlighted in many IS success studies, as poor SQ can lead to a loss of customers (Delone & McLean 2003). Previous studies found that SQ is positively related to PU (Wang 2008) and SAT (Delone & McLean 2003). Both relations were also validated by recent virtual community studies (Lin 2007) and SNS studies (Wang et al. 2008). Thus, it is expected that the positive SQ-PU and SQ-SAT relations will hold on a firm's SNS page as well. Therefore:

*H2a: The service quality will positively affect perceived usefulness on a firm's SNS page.*

*H2b: The service quality will positively affect user satisfaction on a firm's SNS page.*

### 3.3 Social Interaction Quality

Another player in the social layer is the community members. Members of a firm's SNS page share their information, build close relationships with other members, and emotionally support each other. In this study, the quality of social interaction among members is newly developed as the social interaction quality (SIQ). In order to conceptualize SIQ in more specific, the study of Ridings and Gefen (2004) is adopted. Their work examined the main reasons why people engage in social interaction with others in a virtual community. Ridings and Gefen (2004) found that exchange information, social support, friendship, and recreation are the main motivations. However, recreation is not applicable on a firm's SNS page, as its applicability is limited to special context of the community such as multi-user dungeons (MUDs) (Ridings & Gefen 2004). The elimination of this element is further justified by the empirical study of Brandtzæg and Heim (2009) on why people use SNS. The top five reasons are to create new relationships, maintain contact with close friends, socialize with others, share information, and debate, and all of these can be sorted into the Ridings and Gefen (2004)'s classification except recreation. Thus, the conceptual boundary of SIQ can be narrowed down to the three major motivations of exchange information (EI), social support (SS), and friendship (FR). Therefore, SIQ measures how much the identified three sub-dimensions of social interaction among members are fulfilled in a firm's SNS page comprehensively. In order to do so, the sub-dimensions are further developed as quality attributes. In detail, EI is the perceived degree to which members exchange or share valuable information, SS is the perceived degree of being cared for, being responded to, and being helped by others, and FR is the user's perceived degree of socializing and being a member of a group. Finally, SIQ is operationalized as a second-order variable of three first-order variables: EI, SS, and FR.

Previous studies provided the possibility of a positive SIQ-PU relationship. According to Ridings and Gefen (2004) and Brandtzæg and Heim (2009), a person's main goal of using SNS is to interact with other people, or to achieve a certain individual goal through social interaction. Consequently, a higher SIQ will be more helpful to achieve their goal of SNS usage, as it allows users to perform social interaction activities better based on high EI, SS, and FR. Thus, according to the definition of usefulness as "capable of being used advantageously" (Davis 1993, p. 320), SIQ is expected to affect PU positively. Therefore:

*H3a: The social interaction quality will positively affect perceived usefulness on a firm's SNS page.*

SIQ is also expected to influence SAT, as a higher quality tends to lead a higher probability to realize the expected benefits for SAT. For instance, high EI, SS, and FR will help users achieve their expected outcomes in a firm's SNS page which eventually leads SAT. Also, although the SIQ-SAT relationship is yet to be examined empirically, prior SNS studies indirectly supported this proposition. For instance, the networking quality, which is the quality of the system related to social networking functions, was found to affect SAT (Ou et al. 2011). This result illustrated that people place a high value on the quality related to social networking for their SAT. Thus, it is inferred that SIQ would also increase a user's SAT. In addition, many previous SNS studies supported SIQ-related factors (e.g., a sense of community and a need to belong) as positively related to SAT. Thus, it is expected that there will be a positive association between SIQ and SAT on a firm's SNS page. Therefore:

*H3b: The social interaction quality will positively affect user satisfaction on a firm's SNS page.*

### 3.4 Perceived Usefulness

PU is defined as the "user belief in their ability to obtain information and services, share their experiences with others" (Lin 2007, p. 122). In the IS continuance model, PU is a critical determinant of SAT and continuance intention (CI) (Bhattacherjee 2001b). Both relations were further proved in a virtual community and SNS context (Huang et al. 2008; Wang et al. 2008). Thus, it is expected that the relationships will hold on a firm's SNS page as well. Therefore:

*H4a: Perceived usefulness will positively affect user satisfaction on a firm's SNS page.*

*H4b: Perceived usefulness will positively affect continuance intention on a firm's SNS page.*

### 3.5 User Satisfaction

SAT is defined as a user's affective attitude toward a firm's SNS page based on an overall assessment of the experience by the user (Delone & McLean 2003). SAT and CI have been two of the most frequently adopted constructs with which to measure IS success (Bhattacherjee 2001b). A positive SAT-CI relationship was proved many times (Lin 2008a; Shi et al. 2010). Thus, it is expected that a highly satisfied user will tend to revisit a firm's SNS page more as well. Therefore:

*H5: User satisfaction will positively affect continuance intention on a firm's SNS page.*

### 3.6 Incentive

Firms often offer incentive programs since an incentive (IN) enhances a user's utility and motivates continued usage (Bhattacherjee 2001a). While IN is not directly associated with CI, an interaction effect exists between IN and PU, which further affects CI as well (Bhattacherjee 2001a). On a firm's SNS page, IN serves as an extrinsic motivator to attract users and as a driver to build loyalty. Thus, it is expected that IN will moderate the effect of PU on CI on a firm's SNS page as well. Therefore:

*H6: Incentives will moderate the effect of perceived usefulness on continuance intention.*

### 3.7 Network Size

Some researchers (e.g., Lin & Bhattacherjee 2008) have examined the influence of network size (NS) on a user's perceived benefits or behavioral intentions in the IT domain. In the case of a firm's SNS page, as more members join the network, more information exchange, social support, and friendship building events can occur, thereby increasing PU and SAT (Goswami et al. 2010; Lin & Lu 2011). Thus, it is expected that NS will moderate the effect of SIQ on both PU and SAT. Therefore:

*H7a: The network size will moderate the effect of the social interaction quality on perceived usefulness.*

*H7b: The network size will moderate the effect of the social interaction quality on user satisfaction.*

## 4 METHODOLOGY

### 4.1 Measurement Development

All 45 items of the constructs were adapted from previous research with minor refinements to fit the research context. Moreover, all were measured on a seven-point Likert-type scale. In detail, five items to measure CQ were adapted from Lin (2008b) and five items to measure SQ were adapted from Kettinger and Lee (1997). SIQ as a second-order variable was measured by three sub-constructs (EI, SS, and FR). EI was measured using five items adapted from Hoegl and Gemuenden (2001) and Ridings and Gefen (2004), SS was measured using four items adapted from Gefen and Ridings (2005),

and FR was measured using four items adapted from Butler et al. (2007), Peter et al. (2005), and Ridings and Gefen (2004). In addition, five items to measure PU were adapted from Kwon and Wen (2010) and from Lin (2007). SAT was measured by four items adapted from Bhattacherjee (2001b) and CI was measured by four items adapted from Bhattacherjee (2001b) and Jin et al. (2009). As moderating variables, IN was measured by five items adapted from Bhattacherjee (2001a) and Hui et al. (2007) and NS was measured by three items adapted from Lin and Lu (2011).

### 4.2 Pilot Study

In order to assess the proposed research model, a pilot study was conducted with 43 samples obtained from an online survey of Facebook users. SPSS 18 and PLS-Graph 3.0 were used for the data analysis. The measurement model was assessed by examining the reliability, convergent validity, and discriminant validity of the measurement scales. First, Cronbach's alpha and the composite reliability (CR) of each construct were checked. Most constructs satisfied the cut-off value (0.7), except for IQ, but the Cronbach's alpha of IQ was still within the acceptable level (0.68). Secondly, during the convergent validity test, the factor loading score and the average variance extracted (AVE) value were both tested, after which five items were dropped owing to a low loading score. Lastly, for the discriminant validity, inter correlation, square root of AVE, and cross-loading were examined. As a result, the measurement model was confirmed to be safe enough to conduct a preliminary analysis.

## 5 CONCLUSION AND EXPECTED CONTRIBUTION

In this research-in-progress paper, a model was proposed in order to provide insight into what determines the successful usage of a firm's SNS page. Based on the three layers of CET, CQ, SQ, and SIQ were identified as the three key determinants of SNS success. In addition, as moderating variables, the network size and the providing of incentives were examined. The pilot study results showed that the measurement model ensures high reliability and validity and that most of the hypotheses are significant at the 95% confidence level for a two-tailed test, the exceptions being three hypotheses (H4b, H6, and H7b). The results of this study imply that most of the hypotheses can be supported in future research with actual data.

From the pilot study, three key results were found. First, SIQ is a critical antecedent of PU. This result implies that firms should offer a comfortable environment for users to talk with members. Secondly, NS is a significant moderator of the SIQ-PU relationship. This result implies that both high quality and a considerable quantity of social interaction are important to achieve high PU. Therefore, firms should also focus on the total number of members. Lastly, the PU-CI relationship was found to be weak. This result implies that the impact of PU is relatively weak due to the hedonic and interactive characteristics of SNS (Lin & Bhattacherjee 2008; Van der Heijden 2004). In this sense, refinement of the research model to include hedonic or interactive factors at the same level of PU can be considered.

This paper is expected to have implications in both theoretical and practical perspectives. There are three theoretical implications. First, this study is likely to be the first empirical study on the successful usage of a firm's SNS page (SNS success). Although it has long been a major concern in IS success research to examine new types of IS in terms of firm's successful usage, there has been a significant lack of research on a firm's SNS page. This research gap will be filled by this study. Secondly, this study adopts CET as a holistic theoretical framework with which to examine SNS success. The adoption of CET contributes to improving the existing limitations in SNS research by extending the limited theoretical options and providing a solid basis upon which to incorporate human relationship factors. Thirdly, SIQ is newly developed to conceptualize and operationalize social interaction among members on a firm's SNS page. Thus far, no construct which specifically reflects the value of social interaction with other members has been developed. Thus, SIQ is expected to be adopted as well by future SNS researchers. This study also provides practical implications. Through this paper, firms can understand which factors are important and which require attention when managing a firm's SNS page. Thus, this study can provide firms with a guide on how to attract users and how to retain customers in their SNS page.

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